



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,992	08/16/2000	Yasuhiro Tsutamori	Q60457	1827

7590 06/16/2004
Sughrue Mion Zinn Macpeak & seas PLLC
2100 Pennsylvania Avenue N W
Washington, DC 20037

EXAMINER

KIM, CHONG R

ART UNIT PAPER NUMBER

2623

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/639,992

Applicant(s)

TSUTAMORI ET AL.

Examiner

Charles Kim

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13-15, 20-23 and 28-30 is/are rejected.
- 7) ☒ Claim(s) 5-12, 16-19, 24-27 and 31-34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 2623

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Suzuki, U.S. Patent No. 5,327,246 ("Suzuki") and Takayama et al., U.S. Patent No. 6,683,643 ("Takayama").

Referring to claim 1, Suzuki discloses an image processing apparatus comprising an abnormal pixel determining means for specifying each pixel in the digital image data as a subject pixel (pixel of notice) [col. 3, lines 29-40], reading density signal level of the subject pixel together with density signal levels of pixels adjacent to the subject pixel (proximal pixel value group), comparing the density signal level of the subject pixel with the density signal levels of pixels adjacent to the subject pixel and defining the subject pixel as an abnormal pixel (noise) when the difference between the density signal level of the subject pixel and the density signal levels of pixels adjacent to the subject is greater than a predetermined value (col. 4, lines 8-61).

Suzuki does not explicitly disclose an image data storing means for storing digital image data obtained by photoelectrically detecting light with a CCD to produce analog image data and digitizing the analog pixel data. However, these features were exceedingly well known in the

Art Unit: 2623

art. For example, Takayama discloses an image data storing means for storing digital image data obtained by photoelectrically detecting light with a CCD to produce analog image data and digitizing the analog pixel data, and a memory means for two-dimensionally mapping and storing the digital image data stored in the image data storing means (col. 10, line 58-col. 11, line 15 and figure 1).

Suzuki and Takayama are combinable because they are both concerned with determining an abnormal pixel in an image for pixel correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the image processing apparatus of Suzuki to include the image data storing means and the memory means of Takayama. The suggestion/motivation for doing so would have been to store the digitized pixel data so that it can be retrieved at a later time for further processing. Therefore, it would have been obvious to combine Suzuki with Takayama to obtain the invention as specified in claim 1.

Referring to claim 2, Suzuki further discloses an abnormal pixel correcting means for correcting the density signal level of each subject pixel in accordance with the density signal levels of the pixels adjacent to the subject pixel when the subject pixel is defined as an abnormal pixel by the abnormal pixel determining means [col. 4, line 35-col. 5, line 12. Note that the subject pixel (pixel of notice) that is determined to be abnormal (noise) is replaced with either the maximum (Ymax) or minimum (Ymin) pixel value of the pixels adjacent to the subject pixel].

Referring to claim 3, Suzuki further discloses that the abnormal pixel determining means is constituted so as to determine whether the density signal level of each subject pixel is higher than a maximum value of the density signal levels of the pixels adjacent to the subject pixel and

Art Unit: 2623

whether or not the density signal level of the subject pixel is lower than a minimum value of the density signal levels of the pixels adjacent to the subject pixel, and judge whether or not the difference between the density signal level of the subject pixel and the density signal levels of pixels adjacent to the subject pixel is greater than the predetermined level when the density signal level of the subject pixel is higher than the maximum value of the density signal levels of the pixels adjacent to the subject pixel or when the density signal level of the subject pixel is lower than the minimum value of the density signal levels of the pixels adjacent to the subject pixel (col. 4, lines 35-61).

Referring to claim 4, see the rejection of at least claim 3 above.

Referring to claim 20, Suzuki further discloses that the pixels adjacent to the subject pixel are the group of pixels obtained by excluding the subject pixel from 3 * 3 pixels including the subject pixel as a center pixel (col. 3, lines 29-55 and figure 7).

Referring to claims 21-23, see the rejection of at least claim 20 above.

2. Claims 13-15, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Suzuki, U.S. Patent No. 5,327,246 ("Suzuki") and Takayama et al., U.S. Patent No. 6,683,643 ("Takayama"), further in view of Kilgore, U.S. Patent No. 5,903,659 ("Kilgore").

Referring to claim 13, Suzuki does not explicitly disclose that the abnormal pixel correcting means is constituted so as to correct the density signal level of each subject pixel in such a manner that the corrected density signal level is equal to an average value of the density signal levels of the pixels adjacent to the subject pixel excluding the pixels whose density levels have the maximum value and the minimum value.

Art Unit: 2623

Takayama discloses an abnormal pixel correcting means that is constituted so as to correct the density signal level of each subject pixel in such a manner that the corrected density signal level is equal to an average value of the density signal levels of the pixels adjacent to the subject pixel (col. 6, lines 10-15).

Suzuki and Takayama are combinable because they are both concerned with determining an abnormal pixel in an image for pixel correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the abnormal pixel correcting means of Suzuki so that it corrects the density signal level of each subject pixel in such a manner that the corrected density signal level is equal to an average value of the density signal levels of the pixels adjacent to the subject pixel, as taught by Takayama. The suggestion/motivation for doing so would have been to provide the capability to cope with aging changes of defective pixels in the image and detect the abnormal pixels accurately (Takayama, col. 2, lines 24-32).

Suzuki and Takayama do not explicitly disclose that the average value of the density signal levels of the pixels adjacent to the subject pixel excludes the pixels whose density levels have the maximum value and the minimum value. However, this feature was exceedingly well known in the art. For example, Kilgore discloses the step of determining an average value of the density levels of pixels that excludes the pixels whose density levels have the maximum value and the minimum value (col. 5, lines 32-59).

Suzuki, Takayama, and Kilgore are combinable because they are all concerned with correcting noise in image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the average value of the density signal levels of Suzuki and Takayama so that they exclude the pixels whose density levels have the maximum

Art Unit: 2623

value and the minimum value as taught by Kilgore. The suggestion/motivation for doing so would have been to eliminate the bias affect on the average value caused by the minimum and maximum pixel values (Kilgore, col. 5, lines 57-59). Therefore, it would have been obvious to combine Suzuki and Takayama with Kilgore to obtain the invention as specified in claim 13.

Referring to claims 14 and 15, see the rejection of at least claim 13 above.

Referring to claims 28-30, see the rejection of at least claim 20 above.

Allowable Subject Matter

3. Claims 5-12, 16-19, 24-27, 31-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ck
June 8, 2004


Jon Chang
Primary Examiner